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Recent Fern Literature

Ferns are usually comparatively free from the depredations of insects: in Hawaii, however, an insect has appeared which is causing considerable apprehension because of the damage it may do in the forests whose under-cover is there largely composed of ferns. This insect is the fern weevil, *Syagrius fulvitaris* Pascoe. It is a native of Australia, first observed in Hawaii in 1903. As usually happens in such cases, it does more damage in its new home than it did in its old one.

The female lays her eggs in the leaf-stalks of ferns, each one in a small cavity about $\frac{1}{4}$ inch deep which she makes for it. The larva, which lives about fifty days, tunnels in the interior of the leaf-stalk after the usual manner of a borer. The adult, a wingless, warty-looking beetle of grotesque appearance, contributes to the destruction by eating the leaf tissue. Owing to its inability to fly, the spread of the weevil is slow and would be slower were it not carried about on the clothing of men and the hair of animals, and with cultivated ferns which are moved from place to place. Even so, it has become abundant in the Hilo district. Its favorite prey is *Sadleria cyatheoides*, a species with large, soft and fleshy leaf-stalks, but about a dozen other species, including the tree fern *Cibotium Chamissoi*, are attacked.

The forest authorities are fighting the weevil by means of an insect parasite recently discovered in Australia.¹

A short time since, Dr. W. N. Steil described certain cases of regeneration occurring in the leaves of young plants of *Polypodium irioides* growing in an old laboratory culture. He has now recorded other peculiar cases in the same culture, in which the sex organs, both

¹Fullaway. David T. The Fern Weevil. Hawaiian Forester and Agriculturist 18: 101-114, pl. 1. May. 1921

antheridia and archegonia, produced from certain cells in their own tissue, vegetative growths. These growths were like prothallia arising from the germination of spores and produced perfectly functioning antheridia, but no archegonia.²

In the January American Journal of Botany, Miss Mabel R. Hunter has an interesting and detailed account of "The Present Status of *Scolopendrium* in New York State" (Amer. Jour. Bot. 9:28-36, figs. 1 & 2). The report covers field work extending from 1916 to 1921 and represents the writer's own work, aided by several others, including members of our Fern Society. The writer's own conclusions are interesting:

"1. All described stations for *Scolopendrium vulgare* Sm. in the central New York area have been located, and the fern has been found in greater or less abundance at each.

2. Two new substations for the species have been discovered in the Jamesville area.

3. The number of individual plants in the six colonies of the Jamesville Woods substation was determined in 1916 and again in 1920. Comparison of the data shows the *Scolopendrium* is becoming more abundant."

It is interesting to the reviewer to note that at least one station, the first one he ever found, seems not to be in existence at present. Three stations are noted as existing in the Clarke State Reservation at West Green Lake to which a visit was made by members of the Society some years ago. The stations near East Green Lake are apparently still in existence but are doomed eventually to destruction owing to quarrying operations by the Solvay Process Company which has obtained rights to the limestone east of Jamesville. It is

² Steil, W. N. The development of prothallia and antheridia from the sex organs of *Polypodium irioides*. Bull. Torr. Bot. Club 48: 271-277, pl. 4, text figs. 1-4, Jan. 1922.

a matter of interest however that the original station for hart's-tongue first reported by Pursh is probably still in existence near "Split Rock" despite the fact that this region to the west of Syracuse has been for years a base for limestone operations for the Solvay Co.

In general it appears that the hart's-tongue has been maintaining itself throughout the years. Its locations are in many cases somewhat inaccessible and practically always require considerable activity in ascending or descending steep slopes. We may hope that this condition will continue. It would seem possible that there might be some opportunity of artificially extending the ranges by transplanting a few plants to situations of proper type not now occupied.—R. C. B.

A new publication, containing matter of considerable interest to fern students, is announced under the title "Official catalog of standardized plant names," prepared under the auspices of the "American Joint Committee on Horticultural Nomenclature." The purpose of the committee in preparing the list was to establish a standard set of names, with scientific approval back of them, which might be recommended for general use for commercial growers as well as for private individuals and scientific institutions. It is expected that the new list will be of particular use in connection with horticultural publications, exhibitions, seedsmen's catalogues, etc.

At present the divergence which exists among scientists in the matter of names is uniformity in comparison with the wide variation to be found in horticultural usage. Not only are incorrect names,—incorrect according to any system of nomenclature.—in common use, but mis-spellings are frequent, corruptions, duplications, and other instances of confusion abound. As an illustration may be cited the fact that in one catalogue listing ferns for house and garden, species of one genus, (*Dryop-*

teris) may be found under the names, *Aspidium*, *Polystichum*, *Nephrodium*, *Lastraea*, and *Phegopteris*.

An indication of the scope of the undertaking and the wide interest is found in the fact that fourteen national organizations are cooperating, including flower, fruit, and plant interests, park executives, landscape architects, pharmaceutical interests and nurserymen. The fern lists were prepared under the supervision of Mr. Maxon. Publication is financed by the organizations interested, the only expense being the bare cost of printing.

Dr. Benedict is publishing from time to time the results of his long study of the varieties of the Boston fern that have developed and been perpetuated under cultivation, and of their origins. Six years ago he gave us an account of the progressive varieties³—those in which, in a series of sports in a single line of descent, given characters are intensified. Thus, a twice-pinnate sport gives rise to a thrice-pinnate one, a ruffled sport to one more ruffled and so on. These varieties all represent true and discontinuous mutations: that is, they are not developed gradually through a series of slightly differing generations, but arise by a sudden and definite break in characters between parent and offspring. They are infrequent—one sport only among hundreds of thousands of plants grown. Once having arisen, they are stable, reproducing themselves, in the great majority of cases, true to type. In their manner of origin and in their progressive development, carrying them further from the parent form and nearer and nearer to establishment as recognizably distinct species, they furnish an uncommonly good illustration of the manner in which evolution may have occurred, even if, because of their

³ Fern Journal 6: 8–15, pls. 1–3. Bull. Torrey Bot Club 43: 207–234, pls. 10–15. Both 1916.

purely vegetative means of reproduction, they are not to be regarded as an actual demonstration of it.⁴

In his latest article, Dr. Benedict deals with some of the regressive variations or reversions which have appeared.⁵ By reversion is meant, of course, a return toward the characters of the original parent, as when a twice pinnate form produces a once pinnate sport. Some incomplete reversions, such as the appearance of once and twice or more pinnate leaves on the same stock, familiar to everyone who has grown certain of the divided forms of the Boston fern, are to be regarded as a manifestation of the inherent variability of the forms concerned rather than a real mutation. These are more or less a response to seasonal and cultural conditions. A number of true reversions, in which the forms produced have proved quite stable, have, however, been observed and it is wholly probable that others have occurred in florists' establishments and passed unnoticed there. As in the case of progressive varieties, true reversions are very uncommon in proportion to the number of plants in existence and, as is generally the case with reversions, "complete return to the characters of the parent form rarely, if ever, occurs."

This intermediacy of character and the fact that, for instance, "each of the twenty derivative mutations from *Piersoni* . . . may give rise directly or indirectly to reversions of a *Piersoni* type" reveals the possibility of a "confused tangle of forms" which would well-nigh defy ordinary methods of classification. In the case of plants reproducing sexually, hybridism would certainly be suspected. But here, where reproduction is wholly by runners, hybridism is impossible. Dr. Benedict draws the moral that there is adequate

⁴ Leaflets Brooklyn Bot. Gard. series X, no. 3. 1922.

⁵ Am. Journ. Bot. 9: 140-157, pls. v-x. 1922.

reason for caution in making generalizations regarding the similar complexes of wild forms which sometimes are found.

An exhibit of practically all the named forms of the Boston fern has been arranged in one of the plant houses at the Brooklyn Botanic Garden. With them is displayed the chart showing their genealogy which those of us who were privileged to attend the Boston fern show will remember. The immediate parent of each form is also entered on the label accompanying it. In the same house is an exhibit of most of the species of ferns suitable for house plants which are now in cultivation.⁶

HAVE YOU EVER SEEN POLYPODIUM VULGARE AS AN "AIR PLANT?"—"Polypodium vulgare as an epiphyte" is the title of an article by Prof. Duncan S. Johnson in the Botanical Gazette for October, 1921. The facts reported are as follows: several plants were seen on a number of chestnut oak trunks, near Cockeysville, Maryland. The plants were of all sizes, showing that they had developed from spores and not merely "crawled" up the trunks through rootstock growth. They occurred mainly on the north side of the trunks, and were found as high as twenty feet above ground. They did not depend on clefts between branches with any accumulation of soil but grew on the sheer sides of straight trunks, favored, however, by the deep ridges characteristic of the chestnut oak. Mosses and hepatics were found in association, covering the roots to some extent.

Prof. Johnson suggests that this fern may be in the way of becoming an epiphyte of temperate regions.

⁶ See the Flower Grower for March, 1922, pp. 53 and 79. The same note has appeared also in The Garden (English), the Florists' Exchange and the Gardeners' Chronicle (of America).